

ATHS FC – Math Department Al Ain (2012-2013)

Worksheet SWQ - term 2

Grade 11 Core

Name		Date	
Section		Lessons	5.3,5.5,5.6,5.7

1. Factor $y^3 - 64$ completely.

F $(y - 4)^3$

G $(y - 4)(y + 4)^2$

H $(y - 4)(y^2 + 4y + 16)$

J $(y - 4)(y^2 - 4y + 16)$

1. _____

2. Factorize completely: $162w^4 - 2n^4$

3. Factorize completely: $x^6 + 8y^6$

4. If $r(x) = x^3 - 2x + 1$, find $r(2a^3)$.

F $8a^6 - 4a^3 + 1$

G $4a^6 + 4a^3 + 1$

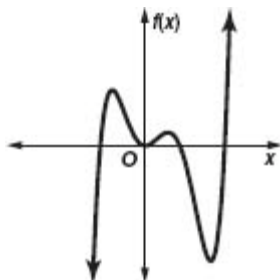
H $6a^6 - 4a^3 + 1$

J $8a^9 - 4a^3 + 1$

4. _____

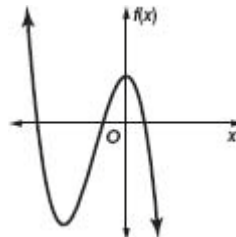
5. If $p(x) = 2x^2 - 3x + 1$ and $r(x) = x^2 - 5x$, find $r(a^2) - p(a + 1)$.

6. Describe the end behavior and determine whether the graph represents an odd-degree or an even-degree polynomial function. Then state the number of real zeros.



7. State the number of real zeros for the function whose graph is shown at the right.

- A** 4
B 2
C 3
D 1



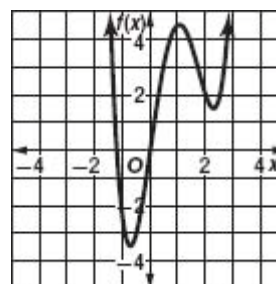
7. _____

For Questions 8 and 9, use the graph shown.

8. Determine the values of x between which a real zero is located.

- F** between 1 and 2
G between -2 and -1

- H** between -4 and -3
J between 2 and 3



8. _____

9. Describe the end behavior and state if it is even or odd degree polynomial function.

10. Write the expression $10x^8 - 6x^4 - 20$ in quadratic form, if possible.

- F** $10(x^4)^2 - 6(x^2)^2 - 20$
G $10(x^2)^4 - 6(x^2)^2 - 20$

- H** $10(x^4)^2 - 6(x^4) - 20$
J not possible

10. _____

11. Solve $x^4 - 6x^2 - 27 = 0$.

- A** $\sqrt{3}, 3, 3i, i\sqrt{3}$
B $-3, -\sqrt{3}, \sqrt{3}, 3$

- C** $-3, 3, i\sqrt{3}, -i\sqrt{3}$
D $-\sqrt{3}, 3, 3i, -3i$

11. _____

12. Which represents the correct synthetic substitution for finding $f(-3)$, $f(x) = 2x^3 - 5x + 40$?

A

$$\begin{array}{r|rrrr} -3 & 2 & -5 & 40 & \\ & & -6 & 33 & \\ \hline & 2 & -11 & 73 & \end{array}$$

C

$$\begin{array}{r|rrrr} -3 & 2 & 0 & -5 & 40 \\ & & -6 & 18 & -39 \\ \hline & 2 & -6 & 13 & 1 \end{array}$$

B

$$\begin{array}{r|rrrr} 3 & 2 & -5 & 40 & \\ & & 6 & 3 & \\ \hline & 2 & 1 & 43 & \end{array}$$

D

$$\begin{array}{r|rrrr} 3 & 2 & 0 & -5 & 40 \\ & & 6 & 18 & 39 \\ \hline & 2 & 6 & 13 & 79 \end{array}$$

12. _____

13. Use synthetic substitution to find $f(-2)$ for $f(x) = 2x^4 - 3x^3 + x^2 - x + 5$.

F 15

G 67

H 63

J 19

13. _____

14. Find the value of k so that the remainder is 3 for $(x^2 + x - k) \div (x + 1)$.

15. One factor of $x^3 - 3x^2 - 4x + 12$ is $x + 2$. Find the remaining factors.

A $x + 2, x + 3$

B $x + 2, x - 3$

C $x - 2, x + 3$

D $x - 2, x - 3$

15. _____

16. Which describes the number and type of roots of the equation $x^4 - 64 = 0$?

F 2 real roots, 2 imaginary roots

H 4 real roots

G 3 real roots, 1 imaginary root

J 4 imaginary roots

16. _____

17. State the possible number of positive real zeros, negative real zeros, and imaginary zeros for $f(x) = 3x^4 + x^3 - 3x^2 + 7x + 5$.